Background: Acute hemodynamic changes from the MitraClip (Abbott Vascular, Santa Clara, CA) procedure have been shown for mitral regurgitation (MR) from mixed etiology, but have not been elucidated in functional MR alone. Also, there is a misconception that reducing functional MR may lead to a detrimental change in acute hemodynamics.
Methods: A retrospective review was performed on 85 consecutive patients with functional MR (mean age 76±11 years, 30 (35%) females) who had full set of hemodynamics prior to and after the MitraClip procedure. 57 (67%) patients were included in the high-risk registry (mean STS score 14.9±7.4%) with 78 (92%) in NYHA functional class III or IV and 77 (91%) with MR grade 4+. There were 34 (40%) patients with left ventricular ejection fraction (LVEF) ≤ 35% (mean 26±6%); overall mean left ventricular end systolic diameter of 40±10mm.
Results: There were significant improvements in the cardiac index (CI; mean pre CI of 1.92±0.47 L/min/m2 vs. post CI 2.43±0.61 L/min/m2, p<0.001) and mean left atrial pressures (MLAP; mean pre MLAP of 20.7±6.7 mmHg vs. post MLAP 17.2±5.7 mmHg, p<0.001). Improvements in CI and MLAP was observed in 75/85 (88%) and 50/74 (68%) patients respectively. At a mean follow-up of 13±9months, 76/85 (89%) was in NYHA functional class I or II (from 78/85 (92%) in NYHA class III or IV at baseline, p<0.001) and 71/85 (84%) had MR grade ≤ 2+ (from 85/85 (100%) in MR grade 3+ or 4+ at baseline, p<0.001).
Conclusions: In patients with functional MR, the MitraClip procedure resulted in a significant change in CI and MLAP.

TCT-797

Transcatheter Mitral Valve-in-Valve / Valve-in-Ring Implantations For Degenerative Post Surgical Valves: Results From The Global Valve-in-Valve Registry

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Background: Transcatheter mitral valve-in-valve / valve-in-ring implantation is an emerging therapeutic alternative for patients with failed mitral valves after surgical intervention and may obviate the need for a redo operation. We aimed to evaluate the clinical results of this technique using a large worldwide registry.
Methods: The registry included 70 patients with degenerated mitral valves after surgical intervention (11.4% ring only, median of 9 years post procedure) from 17 centers. Mean age 74.0 ± 11.3 years; 70% female (STS score 16.2 ± 10.4%). The mode of failure was regurgitation (n=36, 51.4%), stenosis (n=13, 18.6%), and combined stenosis and regurgitation (n=21, 30%).
Results: Transcatheter Edwards SAPIEN (Edwards Lifesciences, Irvine, CA) implantation was performed in all cases (23 mm in 22.9%, 26 mm in 58.6%, and 29 mm in 18.6%). Procedural access was transapical in 60 cases (85.7%); transseptal in 7 (10%), and through the left atrium via right mini-thoracotomy in 3 (4.3%). Combined procedures included 3 aortic valve-in-valves, transapical aortic valve replacement, tricuspid valve-in-ring implantation, and transapical paravalvular leak closure. Device malposition appeared in 4.3% of cases and post implantation valvuloplasty was utilized in 12.1%. Post-procedure, mitral valve area was 2.1 ± 0.6 cm2, valve maximum / mean gradients were 13.6 ± 6.4 mmHg / 6.4 ± 2.7, respectively, and significant mitral regurgitation (≥+2) was observed in 5.7% of patients. Median length of hospital stay was 7 days. At 30-day follow-up, all-cause mortality was 10.3% and 82.3% were at New York Heart Association functional class I/II.
Conclusions: Mitral valve-in-valve/ valve-in-ring implantations, performed in very high-risk patients, were clinically effective in most patients with degenerative mitral valves after surgery. The safety and efficacy of this approach should be further examined.

TCT-798

The 3C-HF as a new predictor of outcomes after MitraClip

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Background: 3C-HF has been recently proposed as a simple score for prediction of heart failure all-cause 1 year mortality, on the basis of patient cardiac and comorbid condition. We evaluated his role in outcome prediction after MitraClip procedure.
Methods: From October 2008, 120 consecutive patients underwent MitraClip implantation at our Institution. At time of study 76 patients have reached 1-year follow-up. We retrospectively analysed in-hospital and 1-year outcome association with pre-operative 3C-HF.
Results: Pre-operative calculated 1-year expected mortality was 35.5%; which was significantly different for FMR and DMR: 43% vs 23.5% (p=0.0018). Overall 30 days mortality was 1.3% (0.0% and 4.2% in FMR and DMR, respectively; p=0.13). Higher 3C-HF score was not predictor of 30d mortality (p=0,36). Higher 3C-HF score was otherwise significantly related to post-operative need of hemotransfusion (p=0.0009), ultrafiltration (p=0.007), cardiogenic shock (p=0.01), liver failure (p=0.04), new renal failure (p=0.003), longer length of stay (p=0.01) and need to discharge to rehabilitation (p=0.001). Overall observed mortality at 1-year was 10.5%, which represents a threefold reduction compared to the predicted mortality by 3C-HF. Higher 3C-HF values were associated to higher 1-year mortality (p=0.03). One year mortality was 11.5% and 8.3% for FMR and DMR, respectively (p=0.66). ROC curve analyses showed a predictive cut-off level of 3C-HF of 58% (AUC 0.68, p=0.07). At 1 year higher 3C-HF was also associated to need of re-hospitalization for heart failure (p=0.004) and worse NYHA class (p=0.01). Preprocedural 3C-HF was 51.4±25.6 in patients who had at least one hospitalization within one year from the index procedure, vs 33.7±21.1 in those who did not require hospitalization. QoL tended to be better in patients with lower 3C-HF (p=0.18).
Conclusions: 3C-HF predicts 1-year mortality and symptomatic outcome after MitraClip; moreover it is associated to acute post-operatve complications. Observed mortality in patients undergoing MitraClip implantation was three times lower than the expected one year mortality as predicted by the 3C-HF score, suggesting a prognostic benefit of transcatheter mitral repair in hea.

TCT-799

MitraClip feasibility and efficacy in the contest of unfavorable valve anatomy

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Background: The value of anatomical and functional selection criteria for MitraClip (Abbott Vascular Inc, Menlo Park, California) still has to be validated in the daily clinical practice.
Methods: Since October 2008, 120 patients underwent MitraClip at our institution. At time of the study, 76 patients reached 1 year follow-up (68.4% FMR, 31.6% DMR). Mitral anatomy was defined "unfavorable" (U-FA) in case of: non-central jet, coaptation depth(CD)>10mm, coaptation lengh(CL)<2mm, flail gap(FG)>10mm, flail width (FW)>15mm, valve area(VA)<4cm2, multiple jets, severe annular calcification, significant leaflet cleft/perforation, target leaflet calcification, leaflet retraction.
Results: U-FA anatomy was found in 46 patients (63.1%), more frequently in FMR (78.8%) rather than DMR (29.1%); the most common reason for U-FA anatomy was CD in 86.9% of patients. Among pre-operative features, U-FA patients had larger EDD (68.6 vs. 64.0mm, p=0.04) and lower EF (32.3 vs. 46.2%, p=0.0007). MitraClip implantation was successful in 97.4% of patients; conversion to mitral valve replacement was required in 2 patients (one from each group). Successful reduction of MR (post-operative MR≤2) was achieved in 87.5% vs 92.8% (p=0.46), procedural time was 106 vs 115 minutes (p=0.4) and post-operative length of stay was 8.5 vs 6.5 days (p=0.55), for U-FA and favorable (FA), respectively. At 1-year, actual survival was 91.6% vs 85.7% (p=0.41), the frequency of patients with MR≤2 was 76.7% and 75% (p=0.87) and NYHA≤II was 88.4% vs 91.7% (p=0.67) for U-FA and FA, respectively. Three partial clip detachments occurred in the DMR patients (1 in U-FA, 2 in FA, p=0.25) and none in FMR patients. Analyses of single selection criteria showed no significant association with 1-year rates of MR>2, mortality or clip detachment. All analyses conducted separately in FMR and DMR strati did not give significantly different results.
Conclusions: MitraClip implantation is feasible and effective in patients regardless of the suggested anatomical selection criteria. Presence of unfavorable anatomy by means of EVEREST criteria did not correlate with 1-year outcomes, both in functional and degenerative settings.